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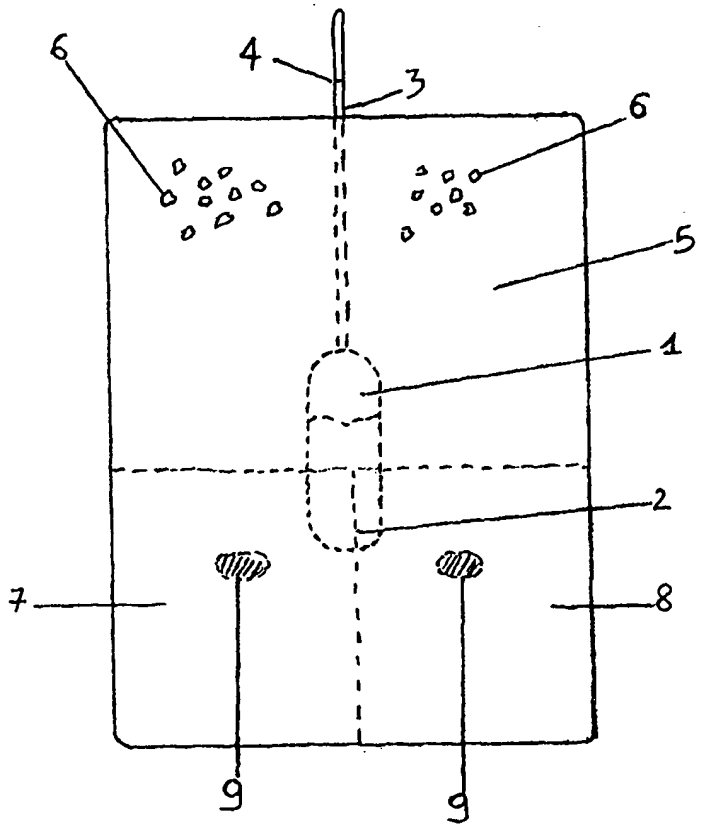
(54) Title: PROCEDURE AND DEVICE FOR THE APPLICATION OF COSMETIC PRODUCTS AT CONTROLLED TEMPERATURES

(57) Abstract

Procedure for heating a cosmetic preparation to a predetermined temperature at the moment of application, without the use of sources of heat external to the preparation package, in which the preparation is inserted into a container whose walls are in contact with, or form an integral part of, a second container in which are separately contained the two or more components which, being mixed in suitable proportions, develop the heat necessary to raise the temperature of the cosmetic preparation to that required, the said components whose mixing generates heat being contained in separate compartments delimited by walls made of material easily ruptured to allow their mixing.



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Description

"PROCEDURE AND DEVICE FOR THE APPLICATION OF COSMETIC PRODUCTS AT CONTROLLED TEMPERATURES"

Technical field

The present invention relates to a procedure for bringing a cosmetic product to a controlled temperature for a predetermined period for the purpose of improving its application. The invention also relates to devices to achieve the aforementioned procedure.

Background art

It is known that temperature variations have a significant influence on the level of activity of a cosmetic preparation. It is also known that the structure of the skin and its ability to modify its reactions because of a buffer effect have always been influenced by the gradient between ambient temperature and body temperature. The skin reacts to contact with hotter substances by pronounced vasodilatation and in general with appreciable hyperemia. The application of a hot product provokes hyperemia and consequent dilatation of the skin surface, thus facilitating the entry and absorption of the cosmetic substance contained in the product.

The hot application of cosmetic product requires the availability of a source of heat to warm up the cosmetic preparation and accurate control of the treatment temperature. Application at too high a temperature or for much longer than prescribed may cause damage to the treated part. On the other hand, the use of too low a temperature may not give the expected results.

The problem of the temperature of application does not arise when treatment takes place in specialized centers, but it considerably limits the achievement of good results when treatment is carried out personally or in small ill-equipped centers.

It would be highly advantageous to have a procedure for the application of cosmetic products at a controlled temperature which could be maintained for a predetermined period and which does not require apparatus for heating or temperature control.

Disclosure of invention

The first objective of the present invention is the creation of a simple and low-cost procedure for heating cosmetic products at the moment of application to a predetermined temperature without using heat sources external to the product package.

The second objective of the present invention is a device which contains the dose of cosmetic preparation and allows the said dose to be raised to the required temperature in a simple operation.

The procedure according to the present invention consists of holding the cosmetic preparation in a container whose outer walls are in contact with, or form an integral part of, a second container in which there are two or more separated compounds which, when mixed in suitable proportions, develop the heat necessary to raise the temperature of the cosmetic preparation to that required. The components which generate heat when mixed are in individual compartments separated by walls made from an easily ruptured material.

The components which constitute the self-heating mixture are well known and comprise salts or anhydride compounds which develop heat when mixed with water, which is usually the second component. The preferred components are anhydrous calcium chloride and water.

The cosmetic preparations which can be used according to the procedure of the present invention are all those whose action is favored by their deep absorption due to vasodilatation. Thus anti-cellulite preparations, gels to prevent vaginal dryness, cleansing facial masks, hair lotions, and anti-wrinkling oils are advantageously used.

It is also possible to use products of thermal-bath type or origin, such as mud-packs or water, which recreate thermal-bath ambiance and conditions when applied hot.

The temperatures to which the cosmetic preparations must be raised according to the present invention, vary between 37°C and 65°C depending on the cosmetic preparation involved, the sensitivity of the person undergoing the treatment, and the type of treatment. It is possible to produce packs of the same product which can be heated to different temperatures by varying the relative proportions and the quantities of the components of the heating mixture. It is also possible to specify application at different times after the initiation of the heating process, thus enabling different temperatures of application to be used.

Another objective of the present invention is to provide a device which can be advantageously used in the above applications.

The device according to the present invention consists of a receptacle or ampoule containing the cosmetic preparation to which is attached a long tubular element closed at its extremity which constitutes the dispenser. The ampoule is completely enclosed in

a container from which protrudes the closed extremity of the dispenser. The container comprises a plurality of separate compartments or bags which contain water or the heating agent, generally anhydrous calcium chloride. The rupture of the bags causes the components to mix and heat the ampoule containing the cosmetic preparation. It is sufficient to cut the extremity of the dispenser to deliver the cosmetic preparation at the desired temperature. The relative quantities of water and calcium chloride can be measured to give a range of treatment temperatures. By dosing the quantities of calcium chloride in the plurality of bags, a range of heating levels of the preparation can be obtained with a single package.

Brief description of the drawing

The advantages of the procedure according to the invention and the method of implementing it will be better understood from the examples of application which follow and which are by way of example only and should not be considered limiting in any way.

To describe in detail the preferred method of implementing the procedure according to the invention, the single attached drawing shows a prospective view, partly in section, of a device for the application of a heated cosmetic preparation.

Figure 1 indicates the ampoule 1 containing the cosmetic preparation 2 equipped with a tubular dispenser 3 which presents a peripheral canula 4 at its extremity to permit the removal of the terminal part at the moment of application of the cosmetic preparation. The ampoule 1, made of deformable material, is inserted into a container 5 which contains granules of anhydrous calcium chloride 6. Inside the container 5 are two bags 7 and 8 which contain water and which are separated from the area in which the granules of calcium chloride 6 are contained by the impermeable walls of the bags. The impermeable walls of the bags may be ruptured (from the outside) by applying manual pressure to weakened zones 9. The rupture of the bag or bags (7, 8) causes contact between the calcium chloride 6 and the water, with the heat of hydration being given off. After shaking the container 5 for a specified time, the preparation 2 inside the ampoule 1 reaches the predetermined temperature and is ready for application. For this purpose, the extremity of the tubular dispenser 3 is removed by cutting the tubular element in the region of the peripheral canula 4, permitting the cosmetic preparation to be squeezed out by slight pressure applied to the ampoule 1.

Applications of cosmetic preparations have been carried out using the device as described above and the results compared with similar applications carried out at ambient temperature:

Trial N°.1

TREATMENT OF CELLULITE

An anti-cellulite oil-type product was applied with ten-minute massage to both legs of ten patients for 16 days at ambient temperature. A statistical evaluation was conducted of the regression of the cellulite situation to compare it with the results obtained by the application of the same preparation at 50°C.

The results showed acceleration of regression, which could be defined as:

1. achieving the same results in reduced periods of time, from 20% to 30% less depending on the cases, (i.e. the same level of results after only 10/12 days of application).
2. at least 10% of an increase in the final result for the same period of standard treatment of 15 days.

Angiographic measurement by ultrasound scan showed :

1. significant increase in hyperemia from the stimulus and activation of the superficial and intra-dermal circulation.
2. increase in circulatory activity and in lymphatic duct activity at the deep dermal level because of the impact of the active agents of the preparation reaching such levels.

Trial N°. 2

TREATMENT OF VAGINAL DRYNESS

Gel application at ambient temperature and at 38°C. to prevent vaginal dryness was studied in five cases.

The problem of application of preparations to mucosal areas which are particularly sensitive to temperature variations occurs again in the case of vaginal dryness. There was an unexpected vasoconstictive reaction to contact with the mucosa by the gel at a lower temperature than the area treated, with consequent difficult and limited absorption, and reduced benefit.

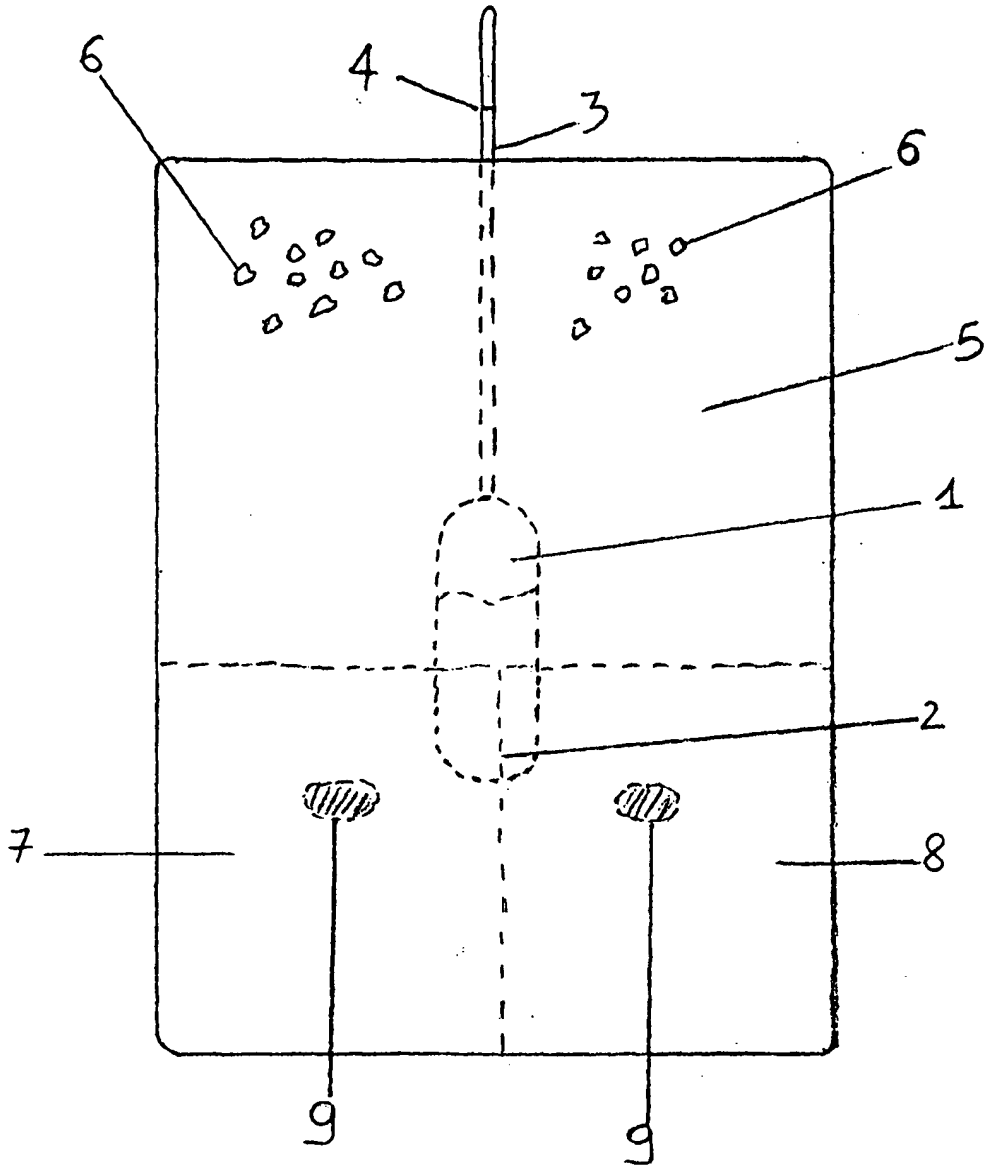
The ability to apply the gel at temperatures much closer to body temperature has meant the elimination of the vasoconstrictive phenomenon, showing objective improvement in the situation in shorter time and for longer periods.

CLAIMS

1. Procedure for heating a cosmetic preparation to a predetermined temperature at the moment of application, without the use of sources of heat external to the preparation package, characterized by the cosmetic preparation being inserted into a container whose external walls are in contact with, or constitute an integral part of, a second container in which are separately contained two or more components which, being mixed in suitable proportions, develop the heat to warm the cosmetic preparation to the desired temperature, the said components being kept separated in compartments delimited by walls which are easily ruptured to allow their mixture.
2. Procedure according to Claim 1, characterized by the cosmetic preparation being selected from among anti-cellulite preparations, gels against vaginal dryness, cleansing facial masks, hair lotions, anti-wrinkling oil, products of thermal-spring origin and thermal-spring type synthesis products.
3. Procedure according to Claim 1 and/or 2, characterized by the components which are mixed to develop the heat necessary to raise the temperature of the cosmetic preparation being anhydrous calcium chloride and water.
4. Procedure according to one or more of Claims 1 to 3, characterized by the quantities of components selected and their relative proportions being chosen on the basis of the treatment temperature desired.
5. Device for the realization of the procedure according to one or more of Claims 1 to 4 , characterized by comprising a receptacle or ampoule 1 containing the cosmetic preparation 2 to which is fixed an elongated tubular element 3, closed at its extremity which forms the dispenser, the ampoule 1 being completely enclosed in a container 5 from which the closed extremity of dispenser 3 protrudes, the container 5 containing anhydrous calcium chloride and providing separate bags, 7 and 8, which contain water, the rupture of the said bags causing the mixing of the components and the heating of the ampoule containing the cosmetic preparation, the extremity of the dispenser being removed to allow the cosmetic preparation to be dispensed at the desired temperature.
6. Device according to Claim 5, characterized by the anhydrous calcium chloride being in the container 5 and the water being present in the bags 7 and 8.

7. Device according to Claim 5 or 6, characterized by the dispenser 3 having at its extremity a peripheral canula 4 to facilitate the removal of the terminal part.

8. Device according to Claim 5 and/or 6, characterized by the ampoule 1 being made of a compressible material to facilitate the delivery of the cosmetic preparation through the dispenser tube 3 by means of light pressure on the walls of the said ampoule 1.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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65D81/34 A47J36/28 A45D37/00 A45D40/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 628 304 A (FREIMAN ROBERT) 13 May 1997 (1997-05-13) the whole document ---	1,3,5
A	US 5 263 991 A (WILEY ROY C ET AL) 23 November 1993 (1993-11-23) the whole document ---	1,3,5
A	PATENT ABSTRACTS OF JAPAN vol. 016, no. 206 (M-1248), 15 May 1992 (1992-05-15) & JP 04 031271 A (PAUDAA TETSUKU KK), 3 February 1992 (1992-02-03) abstract ---	1
A	FR 2 376 401 A (JOUBERT GEORGES) 28 July 1978 (1978-07-28) the whole document ---	1
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[X] Patent family members are listed in annex.

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19 April 2000	28/04/2000

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A	GB 2 113 096 A (ENGLISH GRAINS) 3 August 1983 (1983-08-03) the whole document	1

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5628304 A	13-05-1997	CA 2152452 A,C	23-12-1996
		AU 6119996 A	22-01-1997
		WO 9700637 A	09-01-1997
US 5263991 A	23-11-1993	WO 9515129 A	08-06-1995
		US 5376120 A	27-12-1994
		AU 5983494 A	19-06-1995
		EP 0731674 A	18-09-1996
		JP 9508816 T	09-09-1997
JP 04031271 A	03-02-1992	NONE	
FR 2376401 A	28-07-1978	FR 2442435 A	20-06-1980
GB 2113096 A	03-08-1983	NONE	